App No.: Not Yet Assigned Docket No.: MWS-033

Inventor: Michael H. McLernon, et al.

Title: PROPAGATION OF CHARACTERISTICS IN A

GRAPHICAL MODEL ENVIRONMENT

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Input,
$$u(t)$$
 Dynamic System
State: $x(t)$, Parameters: P Output, $y(t)$

Output: $y(t_k) = f(t, x(t), u(t), P)$

Derivative: $\frac{dx(t)}{dt} = g(t, x(t), u(t), P)$

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Fig. 1A

Input,
$$u(t_k)$$
 Dynamic System
State: $x(t_k)$, Parameters: P Output, $y(t_k)$

Output: $y(t_k) = f(t, x(t_k), u(t_k), P)$

Update: $x(t_{k+1}) = g(t_k, x(t_k), u(t_k), P)$

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Fig. 1B

Input,
$$u(t)$$
 Dynamic System
Parameters: P Output, $y(t)$

Algebraic Eq : $f(u(t), y(t), P) = 0$

Fig. 1C

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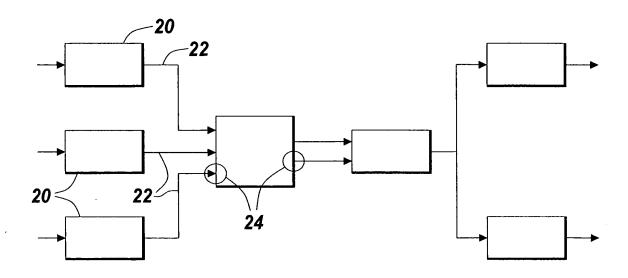


Fig. 2

$$u(t) = \frac{dx(t)}{dt} \xrightarrow{1/S} y(t) = x(t)$$
State, $x(t)$

$$x(t_0) = P_{IC}$$

Fig. 3

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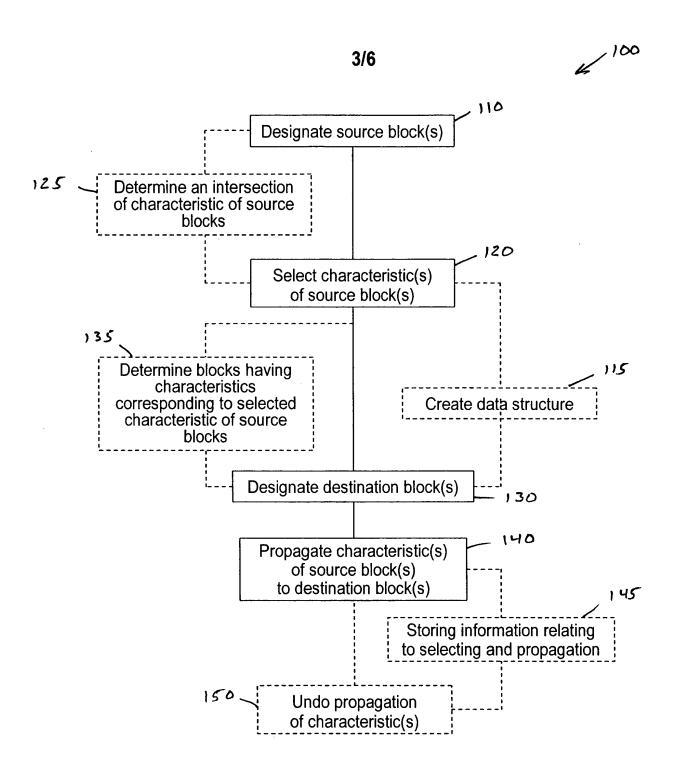


Fig. 4

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200 Open block Open block in new window Cut Copy Delete Mask parameters... SubSystem parameters... Block properties... Real-Time Workshop Fixed-Point settings... 210 Attribute Propagation Mask subsystem Look under mask Link options **Format** Foreground color Background color Help

Fig. 5

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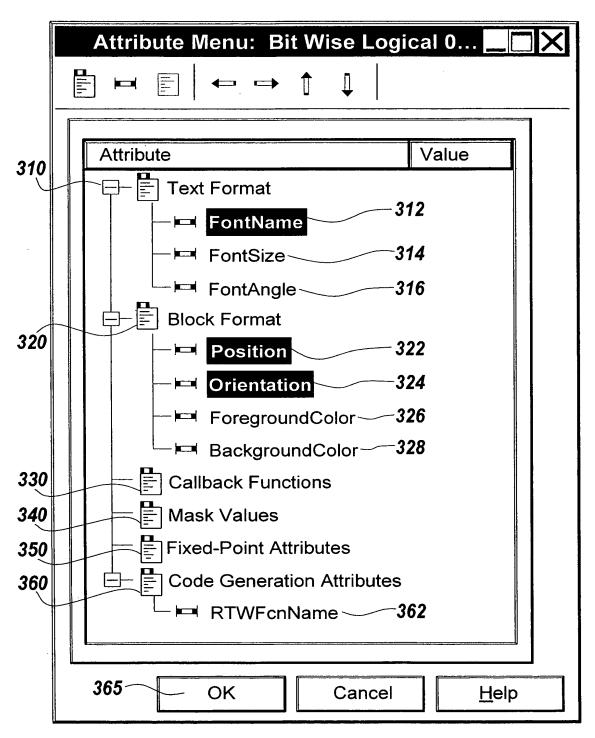


Fig. 6

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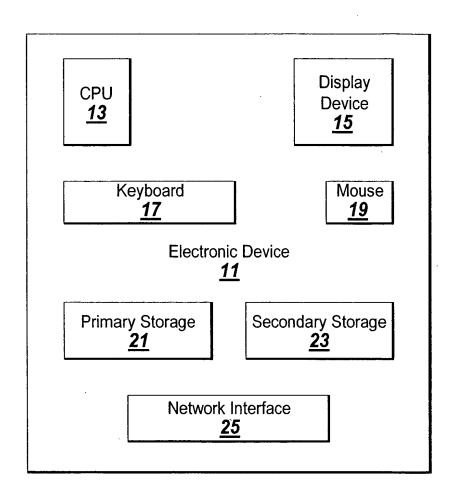


Fig. 7